

THE SCIENCE NEWS-LETTER

A Weekly Summary of Current Science

EDITED BY WATSON DAVIS

ISSUED BY
SCIENCE SERVICE

B and 21st Streets
WASHINGTON, D. C.

EDWIN E. SLOSSON, Director
WATSON DAVIS, Managing Editor



SUBSCRIPTION: \$5 A YEAR, POSTPAID

The News-Letter, which is intended for personal, school or club use, is based on Science Service's Daily Science News Bulletin to subscribing newspapers. For this reason, publication of any portion of the News-Letter is strictly prohibited without express permission.

Vol. IV. No. 167

Saturday June 21, 1924

SCIENCE DID NOT INSPIRE CHICAGO MURDER, UNIVERSITY RECORDS SHOW

The killing was done "in the cause of science!" So Nathan E. Leopold, Jr. and Richard Loeb declared when they confessed slaying young Robert Franks.

Yet investigation by Science Service at the University of Chicago where the two youths were students, fails to show that their criminal tendencies or erratic tastes were suggested in any way by their university work. Neither Leopold nor Loeb made science a specialty. Leopold was taking law and Loeb majored in History.

Data obtained from the office of the recorder of the University of Chicago show that Leopold spent one year at the University of Chicago, then attended the University of Michigan for two years, and then returned to the University of Chicago for another year. The records show he obtained a smattering of elementary science in high school and at the University of Michigan, but that he did not take a single scientific course at the University. He specialized on language, studied ten different tongues, but studied no ornithology. His professed knowledge of psychology is based on only one elementary course and one experimental course.

Loeb's record of two years at Michigan and two at Chicago shows that he studied no science except one elementary course each of geography and physics.

The Italian book Leopold claims as his inspiration is a collection of fifteenth century tales called "Irazionamenti" or "The Reasoning" by Pietro Aretino. It is a story of faithless wives, courtesans, royal immorality, and Boccaccian murders, but the book has nothing whatever to do with science or psychology and was not suggested by any of his instructors.

Leopold's three law professors say they knew the boy only as a name on class list and that nothing in his studies could have encouraged morbid studies. They admit Leopold's brilliance but express joy that he never passed the law course. What the boys know of physics and chemistry is superficial. Before Leopold confessed he was asked if he knew that typewriting experts could trace the ransom note. He said that he did not and became uneasy. On Sunday the police dragged the law with an electro-magnet to pick up the hidden portable typewriter. Leopold said it was of no use because the machine was in a leather case and when police informed him the magnet would work despite leather he seemed ashamed of his ignorance.

The boys brought hydrochloric acid to mutilate their prospective victim only to find later it did not burn his face enough. They spent a day trying vainly to remove blood from the automobile robe, then tried vainly to burn it, and finally buried it.

Leopold claims to be an ornithologist, and he has a room full of birds.

mostly owls, ducks, and other large birds, but many if not all of them are specimens of commercial taxidermy. Bird study was Leopold's pastime, not a scientific study. He does show a fair knowledge of birds superficially, but only a nature lover's knowledge and not a scientist's. He is reported to have taught three classes in ornithology and one of these was at a woman's club. These had nothing whatever to do with the university. He probably merely tutored on the outside. Aside from his hobby of bird study, Leopold knew no biology.

Doctor Krohn, the alienist, says that Leopold invalidates his own argument by clearly indicating that he knows he did wrong. Furthermore, Leopold told reporters that he merely spoke thus to make his deed and arguments consistent. He repeatedly asserts that the killing of any animal is repulsive to him but during a meal he brazenly asserted that human flesh was one of the few raw meats he had never tried. He says our tastes in eating are merely matter of habit. In all this big talk and conceit he is simply fighting his conscience and his captor. A taunting reporter ridiculed his notorious epithet of intellectual giant so Leopold began a discourse on mentality and called the five divisions of the brain by their scientific names, thus showing a superficial knowledge. His friend, Miss Susan Lurie, says that he was fond of analyzing emotions and that his usual conversation had morbid tendency.

Loeb, who was obviously a follower not a leader, had an intense interest in crime, according to Miss Lurie and other students. He spent quite as much time on his gin-drinking escapades and on reading the several detective story magazines to which he subscribed as on his studies.

Three university officials, whose names are withheld, attribute the crime to lack of home discipline and religious training rather than to any scientific studies.

FRANKS SLAYERS CALLED RECOGNIZED ABNORMAL TYPES BY ALIENIST

A rational psychiatric explanation of the acts of Nathan E. Leopold, Jr., and Richard Loeb, brilliant and youthful slayers of Robert Franks, would result from a study of these two youths. This is the opinion of Dr. William A. White, noted alienist and superintendent of St. Elizabeth's Hospital for the Insane, a government institution in Washington, D. C.

Except in their anti-social aspects, the acts of Leopold and Loeb do not differ in grotesqueness and peculiarity from thousands that occur every day and may be observed in institutions for the insane. It is to be expected, Dr. White declared, that when studied their acts will be found to fall into one of the various standard categories of mental disorders.

Noting that both Leopold and Loeb were brilliant young students, and that Leopold allowed his intellectual activities to expand over a wide range, Dr. White called attention to the fact that such intellects that border on genius often go to smash shortly after adolescence.

Land crabs, which are a nuisance to truck growers in Florida, may be exterminated by dropping a small quantity of carbon bisulphide in their burrows.

METEOROLOGIST DIES TO MAKE AIRWAYS SAFE

The storms have conquered. While on his ninth free-balloon flight to study storm paths and causes, Dr. C. L. Meisinger of the U. S. Weather Bureau, and his pilot Lieut. J. T. Neeley of the Army Air Service, were dashed to earth and killed as a result of the destruction of their balloon about midnight of June 2 over central Illinois. They had left Scott Field, near East St. Louis, about seven hours earlier.

The cause of the disaster will always be a mystery. The balloon was burned in the air, but the cause of the fire may have been either a bolt of lightning or a spark from static electricity. According to Weather Bureau records, thunderstorms occurred at scattered points over central Illinois during the fatal night, and a generally electrified condition of the atmosphere was prevalent.

The balloon, one of 80,000 cubic feet capacity, and the largest yet used in the series of flights, was filled with inflammable hydrogen gas, as were all the other balloons used. Officers of the Army Air Service, which furnished the balloon and pilot, when asked why the non-inflammable helium gas, such as is used in the Shenandoah, was not used, said the reason was the prohibitive cost. Helium now costs about \$90 a thousand cubic feet, so that the expense of having filled the big balloon with it would have been about \$7,200 as against about one-tenth of that amount when hydrogen is used. The gas used in free-balloons is a total loss, all of it escaping when the descent is made, while the helium used in dirigibles is conserved as much as possible.

Speaking to a Science Service reporter shortly before leaving Washington to begin the series of flights, Dr. Meisinger said that lightning was one of the two things he feared while in the air, and that he would take no chances with thunderstorms. The other peril was that of landing in water. Aside from these two dangers he considered free ballooning as a safe method of investigating the secrets of the air, and as something of a recreation besides. His service was entirely voluntary, the flights having been taken at his own suggestion which was approved after much consideration by the Weather Bureau authorities. While in the signal Service during the war, Dr. Meisinger had made a number of flights in balloons and airplanes.

The purpose of the whole investigation was to make the air safer for aviation and to learn more about the ways of storms. On each flight a set of instruments for making a study of atmospheric conditions was taken up and frequent observations made at different levels. None of these results had been reported to the Weather Bureau at the time of Dr. Meisinger's death, as he had been operating from Scott Field, and was on the ground only a few days between flights.

Of all the flights, the first was the longest. It began on the afternoon of April 1 at Scott Field, and ended more than 23 hours later when a landing was made at Walterboro, S.C., about 40 miles from the ocean, the total distance traversed having been about 650 miles. Another long flight ended at Palmyra, Ontario, the near approach of the lake forcing a descent. On another flight the intrepid scientist was carried out over Lake Michigan in a snowstorm, but managed to strike a landward current and make a safe descent in Wisconsin. A thunderstorm caused another premature landing.

In reporting his next to the last flight, Dr. Meisinger told Science Service that he expected important results from this last flight, as he intended by using the large balloon to be able to stay in the air 48 hours. He declared he

expected it to be "a specially interesting story".

It will be an unwritten one. Mourned by his many friends and associates, and, although only 29 years old, respected throughout the scientific world for his achievements and scholarship, Dr. C. Leroy Meisinger's name, with that of his Army pilot, Lieut. James T. Meelley, will go down on that long roll of scientists who died martyrs to human progress.

READING REFERENCE - Talmen, C.F. Meteorology, the Science of the Atmosphere. New York, P. F. Collier Sons' Co., 1922.

EPIDEMIC OF ACCIDENTS REPLACES THOSE OF DISEASE

Accidental injuries from mechanical devices are rapidly assuming the importance as menaces to life that formerly was taken by epidemic diseases, according to Dr. J. Howard Beard of Health Service headquarters of the University of Illinois in an address before the American Medical Association, Dr. Beard said:

"An epidemic of injury has succeeded the epidemics of infection. The suicide rate is about that of the whooping cough death rate. About as many people were killed in automobiles at railroad crossings last year as died of scarlet fever in 1920. Fatalities resulting from auto accidents in 1923 are about the same as those from diphtheria and scarlet fever combined. Accidental deaths in industry are approximately equal to the sum of the deaths due to measles, whooping cough and diphtheria. There are 700,000 persons injured yearly in their occupations, whose disability causes a loss from work of not less than four weeks. Industrial poisoning produces its great quota of disease and death, and in some of the more sanitary cities, the exhaust gas from automobiles causes more deaths than the typhoid bacillus.

"Intelligent public sentiment, fostered among employers, employees, and chauffeurs, as well as in institutions of higher learning, is the only way of coping with the accident disease."

READING REFERENCE - Fisher, Boyd. Mental Causes of Accidents. Boston and New York, Houghton Mifflin Company, 1922

LOS ANGELES ANCIENT MAN YOUNGER THAN GLACIAL TIMES

By Watson Davis

Columbus discovered America. But thousands of years before he arrived, red men approaching this continent from the west rather than the east, emigrated here and made this land their home.

Were these very early Indians who crossed Bering Strait the first human

beings to tread the Western Continent? Or does the geologic history of man in America extend further back than thousands of years into a time of glaciers and ice sheets, a period known to geologists as the Pleistocene?

Workmen were digging a sewer near Los Angeles a few months ago. Deep down in untouched earth, 20 feet below the surface, they found human skeletons, six in number. Nothing is more interesting and vital to the students of the past of the human race and this earth than such stories of human tragedy written in bones and dirt. There is always the hope that a strange tale will be told, some new scientific facts revealed.

Archaeologists and historians have been interested in the problem of the antiquity of man in California for the past sixty years, ever since human remains were reported to be found in river gravels in the 60's. Naturally the human bones unearthed in Los Angeles aroused intense interest. Dr. William Alanson Bryan of the Los Angeles Museum of History, Science and Art, Dr. John C. Merriam, president of the Carnegie Institution of Washington, and Prof. Chester Stock of the University of California made an intensive study of the skeletons which some believed might require new anthropological history, even to the extent that man inhabited America during the glacial age. Anthropologists wondered whether the skulls would be found to be similar to the Neanderthal remains from the Pleistocene deposits of Europe. There were hopes that genuinely ancient man, whose ages could be measured in ten and perhaps hundreds of thousands of years, had been found.

Careful scientific study has not fulfilled these hopes. Prof. Stock has reported to the National Academy of Sciences that the Los Angeles skeletons are of modern type, probably not unlike those of relatively modern Indians. In spite of the depths of deposits in which the bones were found, the geologists declare that no evidence has yet been found indicating that these formations date back to the Pleistocene geological period immediately preceding the present and represented in part by the glacial epochs. Probably a few thousand years, but not necessarily tens of thousands of years, have passed since those skeletons were covered with flesh.

Lack of evidence that man was inhabiting America during the glacial age when he was widely distributed over the Old World, does not mean that the human race has an upstart so far as America is concerned. Time is required to account for the development of divergence in physical type among American Indians. It took many years for their various cultures and languages to become separated and differentiated. The human record in the rocks points to the presence of man in America sufficiently long for him to evolve these differences, although the evidence from up to this time still shows man to be a relatively recent arrival in the New World.

READING REFERENCE - Osborn, Henry Fairfield. Men of the Old Stone Age. New York, Charles Scribner's Sons, 1921.

A refrigeration plant big enough for a whole city of 200,000 people is maintained by a manufacturer of motion-picture films, which require constant conditions of temperature and moisture.

THE AMERICAN INVASION OF AUSTRALIA BY CACTUS

By Dr. Edwin E. Slosson.

Cactus is an American invention and a most ingenious contrivance for living in an arid land. Its thick stalks enable it, like the camel, to go long without water and their small surface prevents loss of water by evaporation. Its spines protect it from being eaten even where food is scarce.

Previous to the visit of C. Columbus to this country, the entire cactus family was exclusively American. Notwithstanding this fact, the cactus continues to be put into scenes of biblical life by painters, movie directors and writers. For instance, Donn Byrne plants cactus in a recent rewrite of the Gospel story.

But once America was opened to the world, the cactus spread and now is to be found in regions as remote as those reached by our sewing machines and phonographs and kerosene, but it is not so popular. There being no patent on this American invention, local cactus plants have sprung up in various places that outstrip the original in production.

In Australia more than twice as much land is now occupied with the growing of prickly-pear than with all other crops put together. The latest estimate of the area infested or invested by the pest is put at 40,000,000 to 45,000,000 acres. This is larger than old England, larger than our Georgia. The invasion is still advancing and Queensland alone is losing usable land at the rate of over a million acres a year. And Australia cannot afford to lose much land, for although on the map its area is as great as that of the United States, so much of it is desert that it can never be expected to support more than a fifth of our population.

The prickly-pear was first carried to Australia in 1788 to serve as food for the cochineal insect, which had been brought from South America in the hope of starting a thriving industry in the dye stuff. The insect and the industry failed to thrive, but the prickly-pear did. It grew so well that certain squatters (a squatter in the Australian language is the same as a rancher in the American) took cuttings into the interior to plant cactus hedges around their stations (ranches). The hedges grew so well that in the course of time they covered all the land and the stations had to be abandoned.

The pest was introduced into Queensland by a country gentleman who on a trip to Sydney in 1858 was so much interested in this curious plant that he procured a joint and carried it carefully home in his saddlebag some four hundred miles. He planted it reverently in a choice spot of his garden and diligently tended it. Finally, the growth of two new branches proved that the transplantation was a success, and the proud owner was able to eat of its fruit. In fact the transplantation was more successful than anyone had anticipated, and in 1921 the Queenslanders spent \$390,000 trying to eradicate the prickly-pear, and yet they are losing ground.

The public land infected by the cactus cannot be sold. It cannot be given away. It cannot even be given away with a bonus. The government has offered a bonus as high as \$20 an acre to anybody who would take the land and clear it, but could not dispose of it at that. Land within twenty miles of a railroad has been offered free in lots of a thousand or two thousand acres on condition that it be freed from cactus within ten years, but there were no takers.

In America where the prickly-pear has been so long acclimated it is an

interesting and comparatively innocent plant, though uncomfortable to those who come too close to it. It contributes a picturesque feature to an otherwise monotonous landscape and bears a delicious fruit for those who like it. But in the fresh fields and pastures new of Australia it flourishes better than on its native heath. The individual clumps measure ten to thirty yards in circumference and often stand so close as to be hog-tight. Survey parties have to chop a path through it in places. When it is cut off the crop weighs 700 to 1000 tons per acre. In New South Wales where four million acres are more or less infected the annual loss is estimated at \$2,500,000.

How to get rid of the prickly-pear, or at least check its further spread, has been the subject of an investigation of a commission of the Commonwealth under the scientific control of Dr. T. H. Johnston of the University of Adelaide. His conclusion, as expressed to the Wellington meeting of the Australasian Association for the Advancement of Science, is that chemical means of extirpation, such as poisoning by arsenic, are so expensive as to be prohibitive, and that there is no probability that cactus can be turned into a source of income, as has been the case with another pest innocently introduced, the rabbit. He regards the prickly-pear as of little value as fodder for sheep or cattle. It has been found in New Mexico and South Africa that the juice of the fruit can be fermented and made into alcohol, but this, he concludes, could never be made profitable. There remains only the biological method of attack and Dr. Johnston proposes to draft into the warfare various sorts of bugs and worms, beetles and weevils, bacteria and fungi, that have been found preying upon the cactus in any part of the world. These, the natural enemies of the pestiferous plant, would attack it at all points, root, stem, segment and fruit, and by keeping up the conflict day and night may accomplish what man cannot do directly.

It is an ingenious plan of campaign, but there is always the danger that the insect or parasite introduced to attack the cactus may find the crops as good or better feeding, and so the allies desert to the side of the foe. The lesson of it is that a nation cannot be too careful what sort of immigrants it admits, be they vegetable, animal or human.

CONVENTION PHOTOS SENT BY WIRE

Photographs taken at the Republican National Convention in Cleveland were transmitted by wire to New York, where negatives prepared from them were made available for press distribution. This service was a further test of the invention of a method for the rapid wire transmission of photographs, announced recently by the American Telegraph and Telephone Company, and demonstrated before an audience of newspaper people in New York and Cleveland.

A transmitting machine was installed in the Cleveland Discount building, and the one and only receiving apparatus was located in the Telephone Building at 195 Broadway, New York. The transmitting and receiving equipment were connected by a long distance telephone circuit and were in operation daily throughout the convention. Regarding the future of the invention, officials of the company said that the extent to which it is installed on their long distance lines will depend entirely on the demand which arises for such a type of service.

The system is the outcome of work covering several years and provides a simple, rapid and accurate method for transmitting pictures which will operate over a telephone line. The simplicity of the method is such that a positive transparency

film is suitable for transmission. The apparatus is designed to transmit a picture five by seven inches in a little less than five minutes and the picture is received in such form that after photographic development of the usual sort it is ready for newspaper or other reproduction. As films can be used for transmission while still wet the system eliminates any delay due to drying.

SIMPLE SCIENCE

By WOW

BUTTER

Among edibles cows may not seem to possess as many lines of beauty as some others, but they are beautifuler than pigs. Pigs are a complaining class also whereas cows are more philosophical and even tempered, which is a great aid to the development of grace, poise and beauty of form. Cow language again, although at times a bit too strong for city use, is accommodated quite nicely in the wide open spaces of the country.

Whatever cows may lack in beauty of form and language they make up in beauty of usefulness. Pigs come next. Cow and pig meat are easily first and second prize. Then again milk comes from cows and butter comes from milk. What is more charming than a pot of lovely fresh yellow country butter.

Butter is usually made in a dairy. This word is derived from the old English word "dey", which meant a farm maid-servant, because it was she who used to churn the butter. In the present servantless days it is made either by the wife or by machinery and the dairy may be the back porch, if the flies are not too bad, or the cellar or the factory.

Butter fat occurs in milk in the form of very small round globules which do not stick together unless rather violently shaken. They stick together the most readily if the temperature is between 56 and 62 degrees. The churning should be done slowly at first, then more rapidly and finally slowly again. Real expert buttermakers find no difficulty in the work but amateurs often find the problem very exasperating and very trying on the language.

Poor butter is usually caused by two conditions. It may be due to the presence of the wrong kind of bacteria which gain admittance when the cream is not kept in a clean place, or is kept at the wrong temperature. Buttermakers of good reputation nowadays cultivate lactic acid bacteria which they call a starter, and they impregnate the cream with them, thus developing a nice flavor in the butter. Then again if the Buttermilk is not thoroughly washed out the butter retains too much of the casein, which tends to cause rancidity. Butter usually contains about 85 per cent. of fat, from 10 to 15 per cent. of water, a little casein, milk sugar, salt, etc.

Some butter is firm, other butter is infirm. Some is renovated, some needs it. Some is greasy and some is streaky. Some is yellow from June grass, some from yellow eyes, but most of it is useful for lengthening lives.

BRITISH SCIENTISTS TO MEET IN TORONTO

Preparations are going rapidly forward for the August meeting in Toronto of the British Association for the Advancement of Science, which will be one of the most notable gatherings of English-speaking scientists ever convened on the American continent. More than 400 British scientists and many scientists from the United States and other countries will attend.

Among these will be many whose lives and works are world famous. The retiring president, Sir Ernest Rutherford, who did much of the pioneer work on radio-activity, will turn over his office to Major General Sir David Bruce, chairman of the governing body of the Lister Institute, famous for his work on Malta fever and sleeping sickness. Lord Rayleigh will deliver an address on "The scattering of Light".

"If the World Went Dry" is the somewhat startling title of a paper to be delivered by Sir Napier Shaw. The title is presumably to be interpreted in a strictly literal sense, since Sir Napier is a distinguished meteorologist and president of the International Meteorological Committee. Another topic of popular interest will be "The Sense of Humour in Children" which will be discussed by Dr. C. W. Kimmins, chief inspector of the Education Department of the London County Council.

Popular lectures for children will be a feature of the meeting, three of them being on the program. A series of evening lectures of popular appeal will also be given by some of the distinguished scientists. The regular program will consist of a large number of technical papers to be delivered before the appropriate sections of the Association. Some of these papers are expected to disclose new advances in science of the utmost importance.

The inaugural general meeting will take place in the convocation hall of the University of Toronto on Wednesday, August 6, at which Major General Sir David Bruce will deliver his presidential address on "Advances Made in the Knowledge of Disease, with Especial Reference to Methods Developed During the War". The convention will continue through August 13.

MEDICAL ASSOCIATION PRESIDENT CRITICIZES MODERN CODDLING OF WEAK

A strong plea for more individualism in medicine, and a general criticism of the coddling of the weak by modern civilization were features of the inaugural address of Dr. William A. Pusey of Chicago, newly elected president of the American Medical Association.

Dr. Pusey attacked the Sheppard-Towner Maternity act and commended President Coolidge for his "wise statesmanship in taking a definite stand against federal support of a wide range of socialized activities". He characterized the Sheppard-Towner act as "an expedient to meet temporary difficulties" and warned his hearers to "treat it with prudent foresight if America does not want the medical socialism of the middle classes in Europe". Stating the avowed purpose of the act was to save lives of mothers and children, Dr. Pusey declared that in view of the imminent overpopulation of the earth, limitation of population rather than increase is the logical social ideal. He said:

"In our country, future population must make its support out of territory that is now occupied. Starting with a population of 5,000,000 people in 1800, the United States has in a hundred and twenty years passed 100,000,000. Within the span of children now living, our population will reach 175,000,000. If no effort is made at birth control, Nature will take charge of the situation by eliminating those least able to resist. When this condition of saturation arrives, the human plans of socialistic altruism of today will be wrecked in the struggle by society for mere existence."

After declaring that the knowledge and practice of eugenics was one of the greatest of modern needs, and that eugenics meant not merely the breeding away from disease but the breeding to a strong and healthy stock, Dr. Pusey, advocated more of the old-fashioned relationship between the doctor and his patient. Research had its place, but the cure of sick and injured people would always be the average doctor's principal task.

"Sickness and injury will inevitably remain part of the lot of man," he continued. "Carry our discoveries to the utmost limit, man is still a machine that will get out of order, will be injured and will ultimately wear out. As long as that is true, there will be need for the personal physician to take care of the individual patient. For this service, thousands of physicians will be needed where hundreds can be usefully employed in research and preventive medicine. These are the men on the firing line; the battle for the relief of suffering depends on them. And the efforts of society, as of this Association, should be dedicated to the welfare, and development in training and character, of these men, engaged in the workaday duties of caring for the sick, wherever they are scattered over the face of the earth. To foster the competence of these men is the greatest social responsibility of medicine."

AVIETTES

Forbidden under the terms of the treaty of Versailles to make real airplanes, the Germans are continuing to experiment with gliders and aviettes. The latter are gliders fitted with auxiliary motors of only a few horsepower. One of the most recent of these has been designed by Herr Martens who was one of the winning contestants at the glider competitions last summer. It has a small auxiliary motor of two horsepower. Herr Martens recently went up in it, and succeeded in maintaining a constant altitude in a windless atmosphere for quite a long time. This success has inspired further investigation of the possibilities of these light motor aircraft.

A large electric fan company uses the official records and reports of the U. S. Weather Bureau to regulate its production and sales campaigns.

Chemists at the University of Washington are experimenting with oleo-resin, a fluid found in pockets in the Douglas fir, in an effort to produce a substitute for commercial turpentine now obtained from our rapidly disappearing yellow pine.
